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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,209	01/09/2006	Arndt Glaesser	4932/PCT	7556

21553 7590 11/20/2006
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EXAMINER	
JARRETT, RYAN A	
ART UNIT	PAPER NUMBER
2125	

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/564,209	GLAESSER, ARNDT	
	Examiner	Art Unit	
	Ryan A. Jarrett	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,8,9 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3,8,9 and 11-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/09/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. Claims 1-3, 8-9, and 11-15 are pending in the application and are presented below for examination.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 01/09/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the six workpiece coordinates (claim 2), the five machine coordinates (claim 3), the six splines (claim 13), the five splines (claim 14), and the interpolation parameters (claim 15) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Interpretations

5. The limitation "spline" is interpreted in accordance with its ordinary mathematical definition, i.e., a spline is a function that has specified values at a finite number of points and consists of segments of polynomial functions joined smoothly at these points, enabling it to be used for approximation and interpolation of functions.

Claim Objections

6. Claims 12-14 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is

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required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The test as to whether a claim is a proper dependent claim is that it shall include every limitation of the claim from which it depends (35 U.S.C. 112, fourth paragraph) or in other words that it shall not conceivably be infringed by anything which would not also infringe the basic claim.

Claims 13 and 14 both depend from claim 12. Claim 12 recites, "for each tool path respectively one spline is laid along or through all coordinates of the support points". However, claim 13 recites, "six splines are produced for each tool path". And claim 14 recites, "five splines are produced for each tool path".

Claims 13 and 14 do not include every limitation of claim 12 from which they depend. Namely, claims 13 and 14 do not include exactly one spline for each tool path as required by claim 12. Rather, claims 13 and 14 recite that there is more than one spline for each tool path. Therefore, a prior art tool path with six splines would infringe claim 13, but not claim 12, since claim 12 requires a tool path with only one spline.

Additionally, claim 12 depends from claim 1. Claim 1 allows for "at least one spline" per tool path, whereas claim 12 requires exactly "one spline" per tool path. Therefore, a prior art tool path with only one spline would infringe claim 12, but possibly not claim 1, since claim 1 allows for tool paths with more than one spline.

If claim 12 were amended to recite "at least one" instead of "one", then this particular objection would probably be overcome.

A dependent claim does not lack compliance with 35 U.S.C. 112, fourth paragraph, simply because there is a question as to (1) the significance of the further limitation added by the dependent claim, or (2) whether the further limitation in fact changes the scope of the dependent claim from that of the claim from which it depends. The test for a proper dependent claim under the fourth paragraph of 35 U.S.C. 112 is whether the dependent claim includes every limitation of the claim from which it depends. The test is not one of whether the claims differ in scope.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 2, 3, and 13-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 2 recites that six coordinates are specified for each support point. And claim 3 recites that five coordinates are specified for each support point. One of ordinary skill in the art would not know how a single point in space could be defined by any more than three coordinates (e.g., x, y, z coordinates in Cartesian system, or r, θ , ϕ coordinates in polar system). What do the six coordinates in claim 2 and the five

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coordinates in claim 3 correspond to? Can Applicant furnish drawings depicting such coordinates, and thus facilitate the enablement of the invention?

Claim 13 recites that six splines are produced for each tool path. And claim 14 recites that five splines are produces for each tool path. In accordance with the ordinary dictionary definition of "spline" give above, one of ordinary skill in the art would not know how a tool path could comprise five or six splines. It would appear that a single tool path could only comprise a single spline, since a spline is essentially a single mathematical representation (function) that approximates the single path or curve, in accordance with the ordinary definition of spline. How can a single path or curve be represented by more than one spline? If it is possible for a single path or curve to be represented by more than one spline, can Applicant furnish drawings depicting such a situation, and thus facilitate the enablement of the invention?

Claim 15 recites the limitations "interpolation parameters". Applicant has not defined or discussed the interpolation parameters in the detail required to enable one skilled in the art to use the invention. What are the specific interpolation parameters? Can Applicant furnish drawings depicting the interpolation parameters, and thus facilitate the enablement of the invention? Where there is a great deal of confusion and uncertainty as to the proper interpretation of the limitations of a claim, it would not be proper to reject such a claim on the basis of prior art. As stated in *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962), a rejection under 35 U.S.C. 103 should not be based on considerable speculation about the meaning of terms employed in a claim or

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assumptions that must be made as to the scope of the claims. As such, claim 15 is not being examined on the merits.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-3, 8-9, and 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 (line 3) and 8 (line 2), the phrase "especially" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). Claims 2-3, 9, and 11-15 depend from claims 1 and 8 and incorporate the same deficiencies.

Claim 15 recites the limitation "the interpolation parameters" in line 2. There is insufficient antecedent basis for this limitation in the claim. Where there is a great deal of confusion and uncertainty as to the proper interpretation of the limitations of a claim, it would not be proper to reject such a claim on the basis of prior art. As stated in *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962), a rejection under 35 U.S.C. 103 should not be based on considerable speculation about the meaning of terms employed in a claim or assumptions that must be made as to the scope of the claims. As such, claim 15 is not being examined on the merits.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-3, 8, 9, and 11-14 are rejected under 35 U.S.C. 102(b) (and 35 U.S.C. 102(a)) as being anticipated by EP 1 235 126 A1. As best understood, EP 1 235 126 A1 discloses:

1. **Method for the milling of freeform surfaces on workpieces on a milling apparatus or a milling machine, especially for the 5-axis milling, whereby a workpiece is milled by a tool of the milling machine in such a manner that a desired freeform surface arises (e.g., [0033], Fig. 1 #50), and whereby the tool is moved relative to the workpiece for the milling along at least one tool path defined via support points (e.g., [0034]), characterized in that**

a) **the support points of the or each tool path are defined either in workpiece coordinates or in machine coordinates (e.g., [0045]),**

b) **for each tool path at least one spline is produced in connection with the support points (e.g., [0051], Fig. 1 #28),**

c) **the or each spline is output to a control arrangement of the milling machine (e.g., [0055]-[0058]), whereby the control arrangement controls the motion of the tool along the or each tool path on the basis of the or each corresponding spline (e.g., [0059], Fig. 1 #40, Fig. 1 #50).**

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2. Method according to claim 1, characterized in that, when the support points are defined in workpiece coordinates, then six coordinates are specified for each support point (e.g., [0045], [0069], [0070]).

3. Method according to claim 1, characterized in that, when the support points are defined in machine coordinates, then five coordinates are specified for each support point (e.g., [0045], [0069], [0070]).

12. Method according to claim 1, characterized in that, for each tool path respectively one spline is laid along or through all coordinates of the support points (e.g., [0052]).

13. Method according to claim 12, characterized in that, when the support points are defined in workpiece coordinates, then six splines are produced for each tool path (e.g., [0045], [0069], [0070]).

14. Method according to claim 12, characterized in that, when the support points are defined in machine coordinates, then five splines are produced for each tool path (e.g., [0045], [0069], [0070]).

8. Apparatus for the milling of freeform surfaces on workpieces, especially 5-axis milling apparatus (e.g., Fig. 1 #50), whereby a tool mills a workpiece in such a manner that a desired freeform surface arises (EN: *Prior art milling apparatus capable of performing function.*), with a programming arrangement (e.g., Fig. 1 #10) for the programming of at least one tool path or miller path through support points (EN: *Does not limit structure of the claimed apparatus. Prior art programming arrangement capable of performing function, if programmed to do so. Claims don't explicitly recite a program or software that performs the recited function.*), and with at least one control arrangement (e.g., Fig. 1 #50) for the control

of the motion of the tool along the or each tool path relative to the workpiece (EN: *Does not limit structure of the claimed apparatus. Prior art control arrangement capable of performing function, if programmed to do so. Claims don't explicitly recite a program or software that performs the recited function.*), **characterized in that the support points of the or each tool path are programmable in workpiece coordinates or in machine coordinates in the programming arrangement, that means are allocated to the programming arrangement in order to produce at least one spline for each tool path in connection with the support points, and that the means provide the or each spline to the or each control arrangement** (EN: *Does not limit structure of the claimed apparatus. Prior art programming arrangement capable of performing function, if programmed to do so. Claims don't explicitly recite a program or software that performs the recited function.*), **whereby the or each control arrangement controls the motions of the tool along the or each tool path on the basis of the or each corresponding spline** (EN: *Does not limit structure of the claimed apparatus. Prior art control arrangement capable of performing function, if programmed to do so. Claims don't explicitly recite a program or software that performs the recited function.*).

9. Apparatus according to claim 8, characterized in that the programming arrangement is embodied as a CAD/CAM system (e.g., Fig. 1 #10) for the programming of the or each tool path, whereby the CAD/CAM system produces at least one APT file (e.g., Fig. 1 #11, EN: *Does not limit structure of the claimed apparatus. Prior art CAD/CAM system capable of performing function, if programmed to do so. Claims don't explicitly recite a program or software that performs the recited function.*), which is transferable by at least one subsequent connected post-processor (e.g., Fig. 1 #40, [0035]) into at least one control file

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that is executable by the or each control arrangement (EN: *Does not limit structure of the claimed apparatus. Prior art post-processor capable of performing function, if programmed to do so. Claims don't explicitly recite a program or software that performs the recited function.*).

11. Apparatus according to claim 9, characterized in that the means allocated to the programming arrangement transfer the splines to an APT processor (e.g., Fig. 1 #20), which transfers these splines to the or each post-processor (e.g., Fig. 1 #40), whereby the or each post-processor provides the splines to the or each control arrangement (e.g., Fig. 1 #50) in a polynomial format (EN: *Does not limit structure of the claimed apparatus. Prior art post-processor capable of performing function, if programmed to do so. Claims don't explicitly recite a program or software that performs the recited function. Furthermore, a "polynomial format" is inherent to the prior art splines, per the ordinary dictionary definition of "spline" given above.*).

Per claims 8, 9, and 11, it is noted that apparatus claims must be structurally distinguishable from the prior art. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard

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Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original). See MPEP 2114.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan A. Jarrett whose telephone number is (571) 272-3742. The examiner can normally be reached on 10:00-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ryan A. Jarrett
Examiner
Art Unit 2125



11/06/2006